

Borehole

60-11-12

Log Event A

Borehole Information

Farm : <u>U</u>	Tank : <u>U-111</u>	Site Number : <u>299-W18-105</u>
N-Coord : <u>37,947</u>	W-Coord : <u>75,737</u>	TOC Elevation : <u>665.92</u>
Water Level, ft :	Date Drilled : <u>6/30/1973</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>125</u>	

Borehole Notes:

This borehole was completed in June 1973 to a depth of 125 ft below the original surface. According to the driller's records, this borehole was not perforated or grouted. A hard object was initially encountered at about 7 ft in depth, and the driller offset the borehole a few feet. The borehole is currently located on top of a berm that is approximately 2.5 ft higher than the surrounding ground surface. There was no indication in the driller's log of perforations in the casing or cement in the borehole.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1995</u>	Calibration Reference : <u>GJPO-HAN-3</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>12/14/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>124.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>31.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>12/15/1995</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>32.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

60-11-12

Log Event A

Analysis Information

Analyst : P.D. Henwood

Data Processing Reference : P-GJPO-1787

Analysis Date : 6/7/1996

Analysis Notes :

This borehole was logged in two log runs. The pre- and post-survey field verification spectra show consistent activities, indicating the logging system operated properly during data collection. Energy calibrations differed because of gain drift in the instrumentation. Gain drifts during data collection necessitated energy versus channel number recalibrations during processing of the data to maintain proper peak identification. A depth overlap, where data were collected on separate days at the same depth, occurred in this borehole at about 31 ft. The calculated concentrations were within the statistical uncertainty of the measurements, indicating very good repeatability.

Cs-137, Eu-154, Co-60, processed U-238, and processed U-235 were the man-made radionuclides identified in this borehole. The presence of Cs-137 was measured continuously from the ground surface to 4.5 ft and intermittently from about 96 ft to the bottom of the borehole. The concentrations of Cs-137 measured about 920 pCi/g at 2 ft in depth and near the MDL below 96 ft. Eu-154 and Co-60 contamination tracked the Cs-137 contamination from ground surface to about 4 ft with peak concentrations of about 125 and 16 pCi/g, respectively. Processed U-238 and processed U-235 were measured between 53.5 and 55.5 ft with maximum concentrations of about 220 and 11 pCi/g, respectively.

Additional information and interpretations of log data are included in the Tank Summary Data Reports for tanks U-108 and U-111.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithologic interpretations. The headings of these plots identify the energy of the specific gamma peaks used to calculate the concentrations.

A combination plot includes the man-made radionuclides, the naturally occurring radionuclides, the Total Gamma count derived from the SGLS and the Westinghouse Hanford Company (WHC) Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data from WHC with no attempt to adjust the depths to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainty for the calculated concentrations at the 95-percent confidence level. The minimum detection level (MDL) is shown by open circles on the plots. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.